UNIVERSITY OF QUEENSLAND

Computer Centre

WEEKLY NEWSLETTER

Date   :   Week ended 19 August 1971

Authorization :   Director of the Computer Centre

1.   OPERATIONS

1.1 PDP-10 System

Friday	13 August	System failure, offline 1208-1245.
Monday	16 August	System files updated, Batch only offline, 1000-1230 Test of new Batch, 1535-1653 System failure, offline 1610-1630.
Tuesday	17 August	System failure, offline 1346-1402, 1545-1630 Test of new Batch, 1635-1815 Timesharing offline, 1545-1710.
Wednesday	18 August	Re-run of accounting procedure, due to errors 1000-1055 System failure, offline 2051-2117.
Thursday	19 August	Re-run of accounting procedure, due to errors 1000-1036 Test of new Batch, 1500-1618 System failure, offline 1730-1800.

Schedule for forthcoming week: Maintenance 0700-0900, 2300-2400
                                 Operations 1000-2130

2.   NEW EDITOR

A new version of Editor (version 1.1) will become operative by Wednesday 25 August.

Most of the new features are invisible to the user but they result in improved file handling by the Editor.

Other new features are as follows:

(a) '*' is not suppressed after ↑O.

When control-O is typed the printout from the program is suppressed. Previously the '*' signalling that the Editor was ready to accept a new command was also suppressed and users had to assume that the Editor was ready.

(b) DISK ERROR message

The message 'DISK ERROR' has been expanded to explain the exact nature of the error.

(c) Lines split across disk blocks

Previously, if a line would not fit into the space left in a disk block the Editor would null fill the rest of the block and place the line in a new block. In this version, the Editor makes maximum use of file storage and will split a line across two blocks in order to fill a block completely with meaningful data.

3. FUNCTION SUBPROGRAM FOR BYTE MANIPULATION

A real function subprogram called BYTE and an integer function subprogram called IBYTE are now available in the FORTRAN library. BYTE and IBYTE allow the user to manipulate bytes in a FORTRAN program.

A byte on the PDP-10 is a collection of consecutive bits, from 1 to 36 bits long. Bits are numbered from 0 to 35.

36 bits
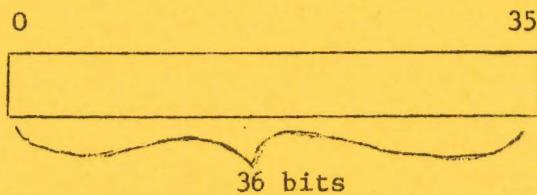
This function allows the programmer to 'lift' a byte of any length from any position in a source word. The value of the result of the function is the value of the destination word with the specified byte from the source word inserted in the required position. The values of all the arguments are unchanged.

The call to the function is as follows:

$$\left\{ {VALUE \atop IVALUE} \right\} = \left\{ {BYTE \atop IBYTE} \right\} (SOURCE, LENGTH, IS, DEST, ID)$$

SOURCE is the source word containing the byte

LENGTH is the length of the byte in bits

IS is the left most bit of the byte in SOURCE

$\left\{ {VALUE \atop IVALUE} \right\}$ is the result of the call. It contains the value of the word DEST with the byte inserted. ID is the left most bit where the byte is placed. LENGTH, IS and ID are integers.

examples:

(i) If we wished to obtain a result with the value of B containing a byte of 12 bits obtained from A, the call would be:

ANS = BYTE (A, 12, 8, B, Ø)

```
        0        7|8        19|20        35
      +----------+///////////+----------+
A:    |          |///////////|          |     source
      +----------+///////////+----------+
                   12 bits

        0                          35
      +---------------------------+
B:    |                           |           destination
      +---------------------------+

        0        11|12              35
      +///////////+-----------------+
ANS:  |///////////|                 |          result
      +///////////+-----------------+
```
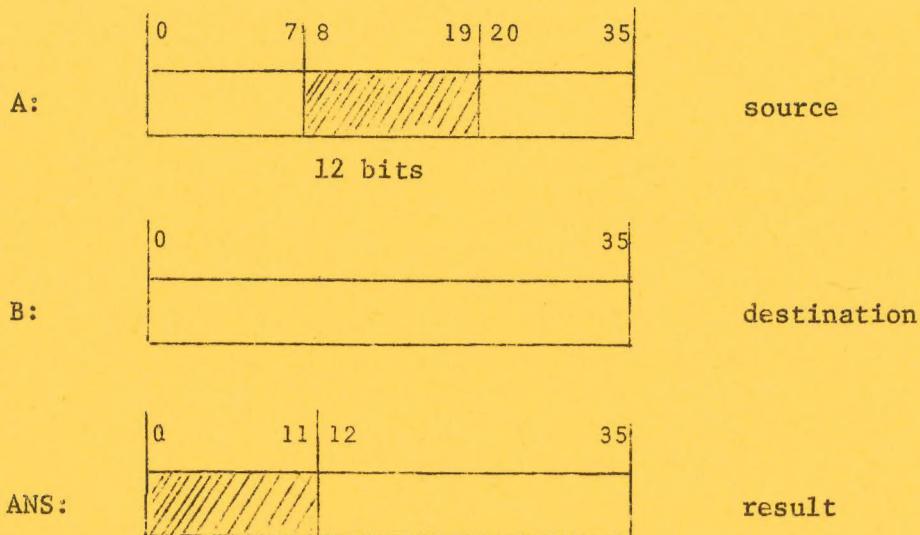
(ii) If we wished to obtain the third character in a word and deposit it right justified with zero filling in IRES, the call would be

$$\text{IRES} = \text{IBYTE (ICHAR5, 7, 14, } \emptyset\text{, 29)}$$

```
          0    6|7      13|14    20|21    27|28    34|35
        +-------+--------+//////////+-------+--------+-+
ICHAR5: |       |        |//////////|       |        | |   source
        +-------+--------+//////////+-------+--------+-+

          0                                          35
        +---------------------------------------------+
ICHAR1: |∅                                           ∅|   destination
        +---------------------------------------------+

          0                          28|29      35
        +-----------------------------+---------+
IRES:   |∅                           ∅|         |       result
        +-----------------------------+---------+
```
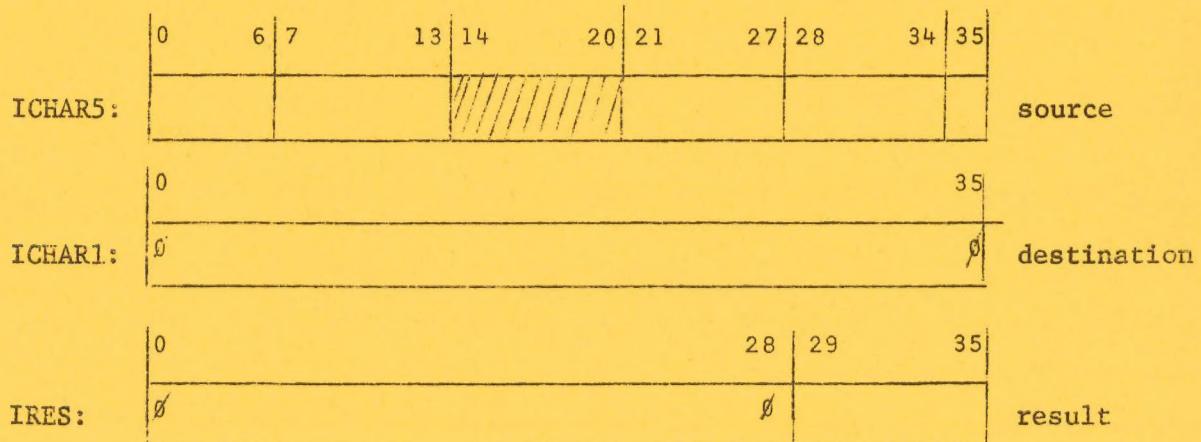
The following non-fatal error messages could occur.

(i)   LENGTH < 0 or LENGTH > 36
      returns the result as DEST and gives the message
      BYTE ARGUMENT OUT OF RANGE

(ii) $\begin{Bmatrix} IS \\ ID \end{Bmatrix} < 0$ or $\begin{Bmatrix} IS \\ ID \end{Bmatrix} > 35$

      returns the result as DEST and gives the message
      BYTE ARGUMENT OUT OF RANGE

(iii) LENGTH + ID > 35
      returns the result as DEST and gives the message
      BYTE CROSSES WORD BOUNDARY

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